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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,158	07/02/2003	Igor Andreevich Sobolev	U 014700-6	4132

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EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/612,158	SOBOLEV ET AL.
	Examiner	Art Unit
	Jennifer A. Leung	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 02 July 2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/061,483.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7-2-03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on Russian application RU 97114712, filed 09/09/1997. However, a certified copy of the RU application as required by 35 U.S.C. 119(b) has not been placed with parent US application 09/061,483. (A photocopy of the return postcard certifying the submittal of the priority document is contained in the parent application, but an actual copy of the foreign priority document has not been matched with the file. The Examiner therefore requests the re-submittal of the priority document).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "**27**" has been used to designate both a pipe for supplying coolant to the hollow cooled lid **26**, as well as a second inductor plate (i.e., similar to inductor **35**), shown in FIG. 5. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection will not be held in abeyance.

3. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware.

Specification

4. The abstract is objected to because it contains plural paragraphs and improper use of legal phraseology (i.e., "comprising", "comprises", and "means"). Also, "U-shap d" should be changed to -- U-shaped -- (line 3). Correction is required. See MPEP § 608.01(b).

5. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware.

Claim Objections

6. Claims 1 and 2 are objected to because of the following informalities:

In claim 1, line 1, "discharg" should be changed to -- discharge --.

In claim 1, line 18, -- and -- should be inserted after "coolant,".

In claim 2, line 6, -- and -- should be inserted after "said first truncated cone,".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear as to the relationship between "a pipe for discharge of the coolant" in line 18 and "a discharge pipe" set forth in line 2, as both pipes provide a discharge function. Furthermore, it is unclear as to which pipe is intended by, "said pipe of the discharge gate" in lines 19-20, as the discharge gate comprises a plurality of pipes (i.e., "a pipe" in line 16

or "a pipe" in line 18).

Regarding claim 2, it is unclear as to which pipe is intended by, "said pipe of the discharge gate" in line 4, as the discharge gate comprises a plurality of pipes (i.e., "a pipe" in line 16 or "a pipe" in line 18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faulkner et al. (US 4,350,516).

Faulkner et al. (FIG. 1, 2) discloses an apparatus comprising:

a discharge pipe (i.e., defined by inner diameter of support bowl **24**);

a cooling jacket having a U-shaped form in cross section disposed on said discharge pipe **24** (i.e., a vertical cross-section of water jacket portions **32** and **38**, wherein portion **38** defines the base of the "U" and portion **32** defines the legs of the "U");

a lid (i.e., positioning block **36**) covering the cooling jacket **32/38** and the discharge pipe **24**;

a lug (i.e., orifice block **44**, with end portion **50** and shoulder **54**) made in the lid **36** from the side facing the discharge pipe **24**;

a through cylindrical aperture made in the lug **44** (i.e., end portion **50**, defining cylindrical outlet orifice **46**), a longitudinal axis (i.e., the vertical axis) of which coincides with a longitudinal axis of the discharge pipe **24**;

a discharge gate comprising a pipe (i.e., metering needle **42**), on one end of which, facing lug **44**, is positioned a cone-shaped tip (see FIG. 2), and on the other end, a lid with an aperture (i.e., block **28** with aperture, not labeled; FIG. 2), adjacent which is positioned a pipe for discharge of coolant (i.e., water filled cooling coil **48**, with straight outlet portion ↑); and

a pipe for supplying coolant (i.e., water filled cooling coil **48**, with coiled inlet portion ↓), positioned coaxially with said pipe of the discharge gate in said aperture of the lid (i.e., pipe **42**), one end of which is positioned adjacent the cone-shaped tip, another end protruding outside the lid **28** (see FIG. 2).

Additionally, Faulkner et al. (column 2, last line, to column 3, line 14) discloses supply and discharge means for the cooling jacket **32/38**, wherein,

> "... water jacket **32** [is] supplied with circulating cooling water through tube **34**. A similar outlet tube (not illustrated) is provided for carrying return water from jacket **32**... Annular block water jacket **38** is interposed between support bowl **24** and positioning block **36** and is provided with its own water supply tube **40**. A similar tube (not illustrated) carries return water away from jacket **38**."

However, Faulkner et al. is silent as to the cooling jacket **32/38** having the specifically recited supply and discharge means; namely, a group of apertures made in the lid **36** and serving to remove a coolant from the cooling jacket **32/38**, and a collector for feeding coolant into the jacket **32/38** positioned on said jacket from the side opposite said lid **36**, said collector having a

group of apertures made in the collector for supplying the coolant to the cooling jacket **32/38**. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select another suitable configuration for the cooling fluid supply and discharge means in the apparatus of Faulkner et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because the shifting of location of parts is obvious, furthermore, the provision of suitably located collectors (i.e., fluid manifolds) for combined supply and discharge of plural fluid streams is well known in the art.

Faulkner et al. (column 3, line 26 to column 4, line 12) further discloses,

> "The outer or lower end portion **50** of orifice block **44** has a substantially reduced outer diameter... The wall thickness in this portion of the block can be significantly less than the remaining part of the block, where the orifice must have a greater diameter and the temperatures and erosion forces of the circulating molten glass are greater... In this way, the amount of surface area at outer face **52** of orifice block **44** is held to an absolute minimum."
>
> "Shoulder **54** is defined by the point of transition from the larger outer diameter of the main portion of block **44** to the reduced diameter portion **50** adjacent its outer end. This shoulder **54** or transition surface area provides the additional benefit of an increased surface area directly exposed to the cooling influence of block water jacket **38**, which is contoured and dimensioned to be in intimate contact with the surfaces of shoulder **54** and outer portion **50** of block **44**."
>
> "The combination of the sharply reduced mass and exposed surface area of the lower end of the block with the direct and intimate contact with the cooling jacket along a substantial surface area permits the block temperature at outer face **52** to be maintained below that at which oxidation normally occurs. Therefore, no protective atmosphere is required."

As illustrated in FIG. 2, the reduction in the peripheral diameter of orifice block or lug **44** is achieved by a "stepped" reduction in diameter from the shoulder **54** to the outer face **52**.

Faulkner et al., however, is silent as to illustrating a "smooth" reduction in diameter from the shoulder **54** to the outer face **52**, such that the lug **44** comprises the form of a "truncated cone". In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to modify the lug **44** of Faulkner et al. such that it formed a "truncated cone", on the basis of suitability for the intended use and absent showing any unexpected results thereof, because it has been held that changes in shape are obvious *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). In this case, one having ordinary skill in the art would expect that a lug having a "stepped" reduction in diameter and a lug having a "smooth" reduction in diameter would function equivalently according to the invention of Faulkner et al., as both constructs provide a sharply reduced mass and exposed surface area at the lower end (i.e., outer face **52**) of the lug, while maintaining a sufficient thickness and contact area with cooling jacket **38** in the remaining portion of the lug.

Allowable Subject Matter

9. Claims 2-4 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The prior art of record does not suggest or adequately teach a discharge unit further comprising the recited discharge gate structure of claims 2 and 3, or a cooling jacket having a U-shape according to a horizontal cross section, such that the discharge pipe is shifted toward a round portion of the U-shaped jacket (claim 4).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Stalego and Weber are provided to illustrate the state of the art. Stalego teaches various means for handling the discharge of molten material through a cooled, jacketed orifice (see FIG. 12-17). Weber teaches a glass drawing apparatus comprising an orifice **33** having a cooling jacket (for cooling water **43**, **44**) and discharge gate **70** (see FIG. 3).

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
July 27, 2004 JAL

Hien Tran

HIEN TRAN
PRIMARY EXAMINER